

The Limits of Competition in Defense Acquisition
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COST GROWTH AND THE LIMITS OF COMPETITION

Allen Friar

Abstract: Cost increases on major weapons system and service contracts have historically been a problem for the Department of Defense (DoD). Cost growth has occurred on all kinds of contracts and on both fixed price and cost reimbursement type contracts. Recent studies have shown that the most influential factors effecting cost growth have been decisions made by the Government, optimistic cost estimating and mistakes. The level of competition or type of contract has little if anything to do with cost growth on most Government contracts. This article analyzes the primary causes of cost growth on DoD contracts and concludes with a discussion of some of the recommendations for controlling cost growth including competition and selecting the appropriate contract type.

Two-line summary: This article looks at the actual cause of cost growth on DoD contracts based on research findings.

The perfect contract is always just one “mod” away according to the old saying in the contracting office. However, seasoned contracting personnel know this is likely not the case and that modifications to the contract almost always come with an increase in price. When decisions are made to change the requirement, to change the quantity or to change the schedule (i.e. delivery or performance time) it usually results in increasing the cost. So it should come as no surprise to learn that recent studies have shown that the primary cause of cost increases on Department of Defense (DoD) contracts has been decisions made by the Government to change the contract.

Looking at five studies conducted recently on the causes of cost growth leads to a simple but inescapable conclusion, if DoD wants to control cost growth on their contracts they must stop making estimating errors or decisions that increase costs.

The first study to be analyzed was a 2008 Government Accountability Office Report (GAO) Assessment of Selected Weapon Programs. This study looked at 72 programs and found that 63 percent had experienced significant cost growth and had changed the requirements once system development had begun. The change in total acquisition cost from the first estimate for all the programs was an increase of \$295 billion dollars or 26 percent (Government Accountability Office, May 2008). After this report to Congress came out the U.S. Senate held a hearing (Senate Hearing 110-639) in which the Armed Service Committee Chairman Senator Carl Levin stated (based on this report) that, “These cost overruns happen because of fundamental flaws that are built into our acquisition systems. We know what those flaws are. DoD acquisition programs fail because the Department continues to rely on unreasonable cost estimates, establish

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14. ABSTRACT Cost increases on major weapons system and service contracts have historically been a problem for the Department of Defense (DoD). Cost growth has occurred on all kinds of contracts and on both fixed price and cost reimbursement type contracts. Recent studies have shown that the most influential factors effecting cost growth have been decisions made by the Government, optimistic cost estimating and mistakes. The level of competition or type of contract has little if anything to do with cost growth on most Government contracts. This article analyzes the primary causes of cost growth on DoD contracts and concludes with a discussion of some of the recommendations for controlling cost growth including competition and selecting the appropriate contract type.					
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unrealistic performance expectations, insist on the use of immature technologies, and directs costly changes to program requirements, production quantities, and funding levels in the middle of ongoing programs” (Levin, 2008). He went on to conclude that it will take “fundamental change in the structure and culture of the acquisition system to address the problem” (Levin, 2008).

Another GAO study looked at the cost of services used to support military operations in 2008 and found that six of the seven contracts reviewed resulted in increased costs. “The primary factor (driving cost growth) was increased requirements associated with continued operations in Iraq and Afghanistan” (Government Accountability Office, September 2008). Some of the other factors identified in the study that also contributed to cost growth were: short term contract extensions, the government’s inability to provide promised equipment, changes in the host country’s labor laws, and having to pay for re-performance of sub-standard work. DoD contract management and oversight problems also contribute to waste and inefficiencies in contract performance (GAO, September 2008). Taken together, changing requirements, whether by adding requirements or extending the period of performance were the primary causes of cost growth on these service contracts.

The third study looked at was “*Sources of Weapon System Cost Growth*” conducted in 2008 by the Rand Corporation. This study analyzed 35 Major Defense Acquisition Programs (MDAPs) in an effort to identify the root causes of cost growth. Their findings are summarized in the following statement: “Procurement cost growth is driven by quantity changes (usually increasing quantity), which accounts for more than half of the total growth. Decisions to change the schedule, additional requirements, and cost-estimating errors account for almost all of the remaining procurement cost growth” (Bolten, et al, 2008). As indicated in their study changing quantity and other decisions by the government account for more than 72 % of procurement cost growth. Inflation and external factors account for only 3% of cost growth on these programs.

The fourth study, “*The Major Causes of Cost Growth in Defense Acquisitions*” (2009) conducted by the Institute for Defense Analysis (IDA), a federally funded research and development center, identified the primary causes of cost growth for 11 Major Defense Acquisition Programs. They conclude in their analysis that, “Virtually every program we surveyed experienced costly problems that could have been avoided or ameliorated through better front-end analysis of overall design issues and risks. Serious attention to system-level risk seems to have been lacking on the part of senior decision makers” (Institute For Defense Analyses, 2009) In other words poor initial requirements analysis and cost estimating resulted in poor decisions by senior government personnel that increased performance risk and program costs.

This problem was recognized by Secretary of Defense Robert Gates who indicated in remarks to the Heritage Foundation in 2008 that the DoD procurement cycle “of adding layer upon layer of cost and complexity onto fewer and fewer platforms that take longer and longer to build must come to an end. Without a fundamental change in this dynamic, it will be difficult to sustain support for these kinds of weapons programs in the future” (Gates, 2008). He believed that “fundamental change” in the DoD acquisition process is required for it to remain viable.

The last study examined was “*Cost and Time Overruns for Major Defense Acquisition Programs*” conducted by the Defense-Industrial Initiatives Group, Center for Strategic & International Studies (2010) which focused on 85 MDAPs with cost estimates set at Milestone B or beyond to try and determine the root causes of cost growth. As they state in their paper some in Congress cite the use of cost reimbursement contracts as a major source of cost growth, and

Secretary Robert Gates has pointed toward contract structure as a key source of cost and schedule overruns, but defense contractors regularly blame the altering of requirements as the most important factor for cost increases (Berteau, et al, 2010). So who is right?

Their initial analysis examined the impact of cost estimates, quantity and schedule changes, engineering problems, the extent of competition and contract structure on the cost performance of the selected MDAPs. They found that variances in the estimating process were the primary driver for cost growth and that changes in quantity were the second leading cause of cost growth even after discounting for reductions in the number of units (Berteau, et al, 2010). Their conclusion seems entirely reasonable, if you start off with a low estimate or add quantities costs will very likely go up.

In looking at cost overruns by type of competition they found that, “In absolute dollar terms, competitive contracts produce less cost growth than contracts awarded with no competition or under unclear circumstances” (Berteau, et al, 2010). Considering the impact of contract structure or contract type on cost overruns they found fixed price contracts appear to have less cost growth than other types. However, they also rightly point out that, “fixed price contracts are more commonly the vehicle of choice for mature technology in full rate production, which are generally considered low risk” (Berteau, et al, 2010). Conversely, cost reimbursement contracts are used when the requirement is less well defined and the government doesn’t have historical costs or market prices so it is reasonable to expect more changes to these types of contracts. These last two findings should be expected because fixed price contracts are prescribed by regulation to be used when you have a well defined requirement, adequate competition and cost and performance risks are reasonable (Federal Acquisition Regulation, 2011). When you don’t have these conditions cost reimbursement contracts are more appropriate.

So what does it all mean? Obviously further study is needed but some generalized conclusions can be made based on the data in these studies and the experiences of many contracting and acquisition professionals.

First, blaming cost increases on the type of contract is like blaming your debit card because your account balance is smaller. Having a debit card may have made it easier to buy the things you bought but it didn’t make you spend the money. It was your decision to buy something that resulted in you spending the money that made your bank account smaller. Likewise, cost increases on DoD contracts are not usually caused by selecting the wrong contract type but are caused by decisions the government makes. However, using a fixed price contract when you don’t have a well defined requirement may result in the contractor bidding higher to make sure they can cover their costs but it is the decision by the government to use this type contract inappropriately not the contract type itself that results in the increased cost. Using a cost reimbursement type contract may make it easier to add work or change the contract thereby increasing the cost, but it is not the cause of the increase. Selecting an inappropriate contract type may in some cases result in increased cost and necessitate the restructuring of the contract to prevent the contractor from defaulting but again, it is not in and of itself the cause of the cost increase.

Second, poor planning and underestimating the cost of a program whether done because it was more likely to get funded, because someone wanted to bring it in under budget, because the requirement was unclear or because of a mistake is unlikely to change much given the human, political and budgetary environment we live in. Some mistakes can be avoided and we should guard against using overly optimistic cost estimates and schedules but planning and estimating

are not exact sciences. In acquisition planning we must do a better job of estimating the costs and assessing the risks of a program before proceeding.

Third, as Secretary Gates and others have stated our acquisition process itself is problematic. The DoD Undersecretary for Acquisition Technology and Logistics, Aston Carter, issued a number of initiatives (i.e. Better Buying Power Initiatives) to improve the procurement process but the Joint Capabilities Integration and Development System, (JCIDS) which is closely linked to the acquisition process does not work very well and it takes too long and costs too much. It remains to be seen if these initiatives will help to improve this process. Like the often quoted head of USAF Intelligence Lt. General David Deptula has said, “Al Qaeda doesn’t have a JCIDS process, and we need to be able to operate much quicker and inside our adversary’s decision rate” (Hasik, 2010). He argues that all systems must be procured with the same urgency as the Mine Resistant Ambush Protected (MRAP) vehicle which was allowed to circumvent the normal acquisition process to get them to the troops in Iraq in record time. This was a successful program (by most accounts) but it was allowed to bypass many of the existing rules which are indicative of the problems with the process itself. Undersecretary Carter has now called for institutionalizing this ad hoc rapid acquisition program for all of DoD but much remains to be done (Censer, 2011).

Retired Marine Corps Lt. General Paul Van Riper was quoted recently in *Defense Newsstand* (2011) as saying, “The main two problems with JCIDS are an overly bureaucratic approach and a focus on material solutions to the detriment of doctrine, organization, training, leader education, personnel and facilities” (Castelli, 2011). Another senior military official was also quoted as saying, “JCIDS has long outlasted any utility it might have had since it started with an assumption that technology could solve any issue having to do with conflict” (Castelli, 2011). The Vice Chairman of the Joint Chiefs of Staff General James Cartwright has now commissioned an independent review of the acquisition process and wrote, “A change to the acquisition requirements process is required to reflect the realities of the current fight, cycle time of the current threat and organizational change” (Castelli, 2011). Many would agree it’s about time and DoD is currently looking at ways to streamline the process.

Better training for the acquisition workforce is often touted as another way to improve acquisition outcomes and in some cases this may help, but regardless of how well trained acquisition and contracting personnel are at navigating an overly complicated and dysfunctional system it can’t really help much to hold down cost and speed up the procurement time because the system itself is the main impediment. Frankly put, our acquisition process is too complicated, too slow, and too expensive and has too many competing objectives. Adding more rules and more training will not make it better. We need to recognize that adding more rules might just make the system collapse from its own weight and inefficiency. At long last some of our leaders are speaking out, “the emperor has no clothes.” JCIDS and our acquisition process don’t work very well, they take too long, and they help to drive up costs. Echoing this sentiment, Tim Owings, Deputy Project manager for the Army’s unmanned aircraft systems said recently in an article in *Federal Times* (2011), “The requirement process is fundamentally disconnected from what we do. I call it a glacial process and I think that’s being almost too kind to the process” (Hoffman, 2011). He went on to say that what the service (Army) “doesn’t need is another long list of rules to reform the acquisition process” (Hoffman, 2011).

Finally, while the level of competition can initially help to hold down the cost of a contract award it has little if anything to do with decisions made after award to change the contract which then results in a cost increase. If there are no historical prices and the original cost estimate used

by the government to determine fair and reasonable price is erroneous or intentionally understated competition or the lack thereof can't be blamed for the subsequent increase in cost. The appearance of competition is not the same thing as competition. The ability of competition to help control cost is limited to the ability of the government to adequately define and price their requirement based on the capabilities that exist in the market place. If the required technology doesn't really exist or if only one source can potentially provide the item or service then competition can't even help control the initial cost let alone the final cost.

The Institute for Defense Analyses, in their previously cited study for the Under Secretary of Defense Acquisition Technology and Logistics, say in their concluding remarks about cost growth on the programs they examined that "cost growth in each of them could have been greatly reduced or eliminated if policies and procedures previously developed and promulgated for that purpose had been rigorously enforced" (IDA, 2009). Another way to say this is that if regulations already on the books had been followed cost growth would have been much less. They offer a number of recommendations to help alleviate the major causes of cost growth and support the goals of the Weapons System Acquisition Reform Act of 2009. These recommendations included:

- 1) Improve Defense Acquisition Executive Management Oversight. This would be done by establishing a greater sense of commitment and accountability among leaders of the acquisition team.
- 2) Strengthen The Analytical Basis For Setting Major Defense Acquisition Program Requirements. A key to these analyses would be to include an appropriate range of material and non-material alternatives and an accurate assessment of the feasibility, risks and likely costs of these solutions.
- 3) Rename and Restart Programs with Major Scope Changes.
- 4) Strengthen Technical Oversight.
- 5) Improve Contractor Selection. In "best value" source selections for cost type contracts the government should rely less on the contractor's estimates and more on our own cost realism analysis.
- 6) Strengthen Affordability Assessment. The acquisition program should be examined annually to assess its long term affordability.
- 7) Avoid Unproductive Prototyping. Use competitive prototyping only when it can be shown to be cost effective and don't rely on it as a substitute for robust systems engineering.
- 8) Avoid Ineffective or Misguided Reforms. Use "pilot programs" that have demonstrated effectiveness before implementing wider reforms (IDA, 2009, pages 56-60).

Although these recommendations will require no new legislation or major organizational changes they will require an increase in diligence by DoD acquisition executives and the entire acquisition team (IDA, 2009). It may seem anti-climatic but today the importance of doing our job within the existing regulations for the benefit of the country and the tax payers cannot be overstated.

Some additional recommendations for controlling cost growth on government contracts include:

- 1) Striving for real competition, which means understanding the capabilities that exist in the marketplace and defining the requirement to take advantage of this capability.
- 2) Designing a faster, simpler acquisition processes that has fewer competing objectives and takes advantage of today's business processes and technology.
- 3) Start with realistic schedules and cost estimates.
- 4) Don't change the requirements after contract award.

If all of these things were done the ability to control cost growth on DoD contracts would be considerably enhanced.

In an ideal world where you could quickly and successfully navigate the acquisition process and come out with a well defined requirement that will have true competition in the marketplace and will result in the award of a fixed price contract that will not need to be changed during performance, the potential for cost growth would be limited. Unfortunately, in the real world and especially in DoD, this is rarely the case.

REFERENCES

Berteau, David, et al, 2010, Cost and Time Overruns for Major Defense Acquisition Programs, Center for Strategic and International studies, Washington , DC. Pages 3-4.

Bolten, Joseph G., Leonard, Robert S., Arena, Mark V., Younossi, Obaid, and Sollinger, Jerry M., 2008, Sources of Weapon System Cost Growth, Analysis of 35 Major Defense Acquisition Programs, RAND Corporation, Santa Monica, CA. Page 47.

Castelli, Christopher J., "Cartwright seeks Independent Look at Acquisition Requirements Process" 25 May 2011, retrieved from <http://defensenewsstand.com/NewsStand-General/The-INSIDER-Free-Article/cartwright-s...>

Censer, Marjorie,"Acquisition Chief says Pentagon needs to buy faster," The Washington Post, 17 July 2011, retrieved from <http://www.washingtonpost.com/business/capitalbusiness/pentagon-acquisition-chief-seeks...>

Deptula, David Lt. General, USAF, as quoted by Michael Hoffman, Outgoing U.S. IRS Chief Slams Slow Acquisitions," Defense News, 16 August 2010, page 28.

Federal Acquisition Regulations, 2011, Part 16.202-2.

Gates, Robert M., Secretary of Defense, May 2008, Remarks to Heritage Foundation, Colorado Springs, CO.

Government Accountability Office (GAO), May 2008, Defense Acquisitions, Assessment of Selected Weapons Programs.

Government Accountability Office (GAO), September 2008, Military Operations: DoD Needs to Address Contract Oversight and Quality Assurance Issues for Contracts Used to support Contingency Operations. Page 12.

Hasik, James, 2010, "Al Qaeda doesn't have a JCIDS process, - thoughts on institutionalizing rapid acquisitions" 15 October 2010, available at <http://www.jameshasik.com/weblog/2010/10/al-quaeda-doesn't-have-a-jcids-process...>

Hoffman, Michael (2011) Army UAV project manager rips acquisition process, Federal Times, October 3, 2011, Springfield, VA. Page 8.

Institute for Defense Analyses (IDA), 2009, the Major Causes of Cost Growth in Defense Acquisition, Alexandria, VA. Page 48.

Levin, Carl, U.S. Senator, Hearing before the Committee on Armed Services United States Senate, June 3, 2008

Author biographies:

Allen Friar is a Professor of Contract Management at the Defense Acquisition University-South in Huntsville, AL. Mr. Friar has spent the last ten years as an instructor at DAU and has over 15 years contracting experience with the US Army including the US Army Aviation and Missile Command at Redstone Arsenal in Huntsville. Mr. Friar teaches both online and classroom contracting courses. Mr. Friar has a Masters Degree in Public Administration and is a member of National Contract Management Association. Email address: allen.friar@dau.mil



Cost Growth and the Limits of Competition

Allen Friar



Reasons For Cost Growth

Cost and schedule overruns on Major Defense Acquisition Programs (MDAPs) is a major problem. So why do they occur?

I looked at five recent studies and associated literature on this subject to try to find out.

What I found was that actions or decisions of the Government were the primary reasons for cost growth.



Five Recent Studies

- GAO Report (2008) Assessments of Selected Weapon Programs. Looked at 72 programs and found 63% had experienced cost growth.
- GAO Report (2008) Military Operations. Looked at seven service contracts found six had overruns.
- RAND (2008) study “Sources of Weapon system Cost Growth. Looked at 35 MDAPs all but 8 experienced cost growth.



Five Recent Studies (cont.)

- Institute for Defense Analysis (2009) study “The Major Causes of Cost Growth in Defense Acquisitions.” Looked at 11 MDAPs all of which experienced cost growth.
- Defense-Industrial Initiatives Group (2010) study “Cost and Time Overruns for Major Defense Acquisition Programs.” Looked at 85 MDAPs and most experienced cost growth.



Reasons For Cost Growth

Cost overruns primarily occur for the following reasons:

- Changes made to contract
- Estimating errors
- Inadequate analysis of risks
- The process itself
- Contract type, not so much



Causes of procurement cost growth

- **Errors** 15% (Est. 8%, Tech. 5%)
- **Changes** 57% (Qty. 41%, Sch. 10%)
- **Financial** 1% (Inflation)
- **External events** 2% (Congress, etc.)

(RAND 2008)

72% of cost growth caused by errors or decisions made by government officials.

Poor upfront analysis was also a factor.



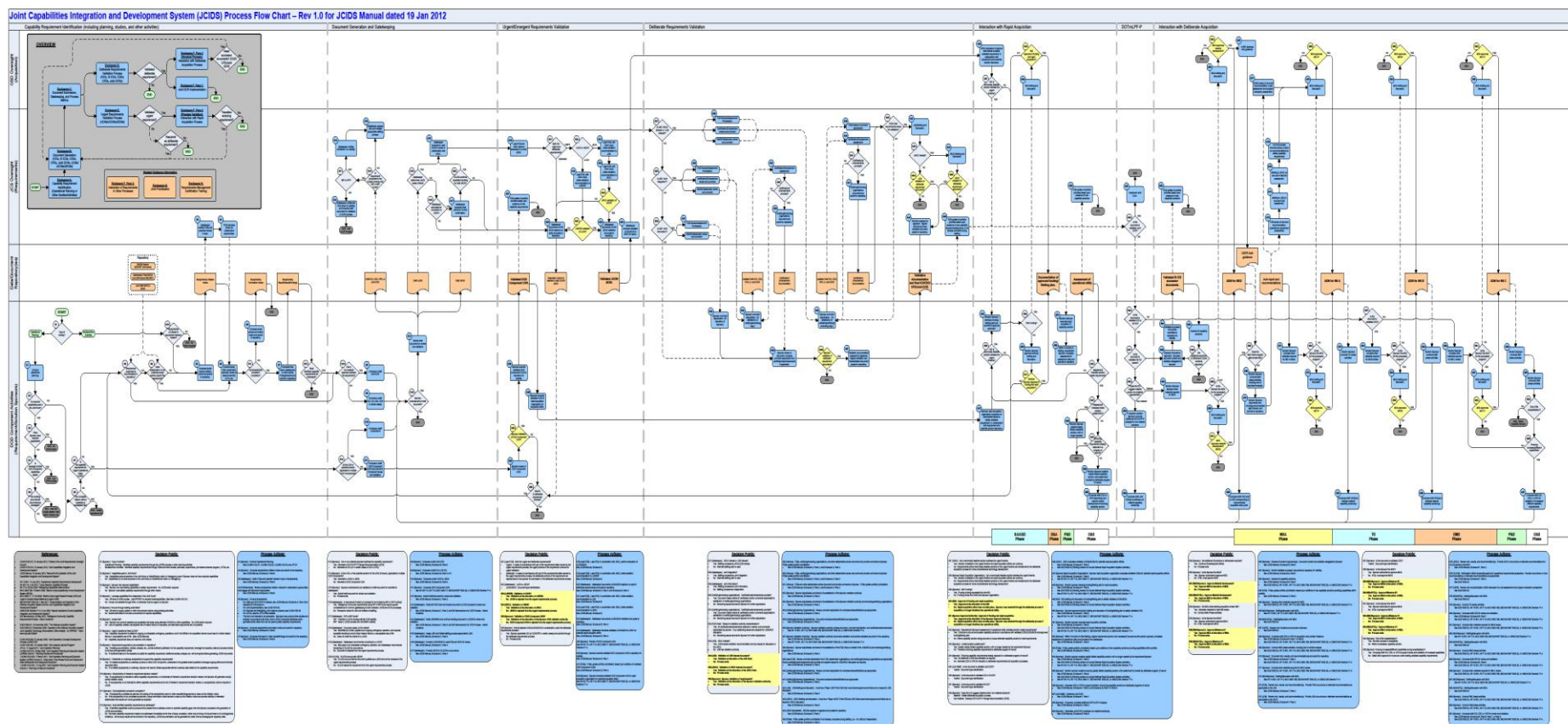
Some other causes

- **Contract management issues**
- **Paying for re-performance of sub-standard work**
- **Ktr caused delays**
- **Engineering changes**



Another cause, JCIDS

Joint Capabilities Integration and Development System (JCIDS) Process Flow Chart – Rev 1.0 for JCIDS Manual dated 19 Jan 2012





Recommendations

- **Better up front planning and risk analysis**
- **Improve cost estimating capability and market research**
- **Strive to have real competition**
- **Don't change the contract**
- **Streamline the acquisition process**



Cost Growth

- Questions???

Thank you!